

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 13

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KUO-HUA LEE and CHEN-HUA D. YU

Appeal No. 94-0166
Application No. 07/815,316¹

ON BRIEF

Before WILLIAM F. SMITH, GRON and PAK, Administrative Patent Judges.

PAK, Administrative Patent Judge.

DECISION ON APPEAL

Kuo-Hua Lee et al. (appellants) appeal from the final rejection of claims 1 through 5, which are all of the claims pending in the application.

The subject matter on appeal relates to a method of manufacturing "integrated circuits having self-aligned electrical contacts." See specification, page 1, lines 3-4. The claims on

¹ Application for patent filed December 30, 1991.

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appeal are represented by independent claim 1 which is reproduced below:

1. A method of integrated circuit manufacturing comprising the steps of:

forming a plurality of spaced apart gate electrodes, said electrodes comprising a conducting structure, an insulating top layer, and dielectric sidewalls;

depositing a layer of conformal dielectric, said layer contacting at least a portion of said gate electrodes and the substrate between the gate electrodes;

depositing a layer of photoresist;

forming openings in said photoresist which expose portions of said conformal dielectric between said gate structures, said openings being larger than the desired contact area;

etching at least a portion of said conformal dielectric layer to expose a portion of the substrate between said gate structures; and

forming a landing pad contacting said substrate.

As evidence of obviousness, the examiner relies on the following references:

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|----------------------|------------|---------------------------------------|
| Liu et al. (Liu) | 5,049,517 | Sep. 17, 1991 (filed Nov. 7, 1990) |
| Fazan et al. (Fazan) | 5,084,405* | Jan. 28, 1992 (filed Jun. 7, 1991) |

* The Examiner's Answer incorrectly cites 5,048,405 on page 2 thereof.

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The appealed claims stand rejected as follows:

(1) Claims 1 through 5 under 35 U.S.C. § 103 as unpatentable in view of the combined disclosures of Fazan and Liu; and

(2) Claims 1 through 5 under 35 U.S.C. § 112, first paragraph, as lacking adequate written description for the limitation "depositing a layer of conformal dielectric, said layer contacting at least a portion of said gate electrodes" in the disclosure as originally filed.

We reverse each of the above rejections.

OBVIOUSNESS

Appellants dispute the examiner's findings that Fazan's "polysilicon layer 61 matches the landing pad's conditions" (Answer, page 4) defined in the specification (Specification page 2, lines 10-11) and forms "a landing pad contacting said substrate" in accordance with the method of claim 1. The dispositive question is, therefore, whether the prior art relied upon by the examiner describes or would have suggested "forming a landing pad contacting said substrate" in accordance with claim 1. We answer this question in the negative.

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As a matter of law, we initially interpret this disputed limitation to determine its scope and meaning. We give the claim language its broadest reasonable interpretation **consistent** with the description of the invention in the specification. See In re Zletz, 893 F.2d 319, 321-22, 13 USPQ2d 1320 (Fed. Cir. 1989). When, for example, an intent is expressed in the specification to utilize a term or expression in a more limited sense, we will give that term or expression in a claim such limited meaning. Cf. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582, 39 USPQ2d 1573, 1576 (Fed. Cir. 1996); In re Paulsen, 30 F.3d 1475, 1480, 31 USPQ2d 1671, 1674 (Fed. Cir. 1994). This "rule of thumb" for claim interpretation allows appellants to be their own lexicographers. See ZMI Corp. v. Cardiac Resuscitator Corp., 844 F.2d 1576, 1580, 6 USPQ2d 1557, 1560 (Fed. Cir. 1988).

Here, appellants have defined "a landing pad" in the specification. According to page 2, lines 10-11, of the specification, "[a] metal is deposited and patterned to define the contact which is termed a landing pad." Appellants then go onto explain that (specification, page 3, lines 18-19):

The metal may be blanket deposited and then patterned to form the landing pad. The resulting structure is depicted in FIG. 3.

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Appellants' purpose is to manufacture "integrated circuits having self-aligned electrical contacts." See Specification, page 1, lines 3-4. Thus, we interpret the disputed limitation "forming a landing pad contacting said substrate" as depositing a metal and patterning it to define self-aligned electrical contacts.

Having so interpreted the claim language, we agree with appellants that the examiner has not established that the claimed subject matter as a whole would have been obvious to one of ordinary skill in the art within the meaning of 35 U.S.C. § 103. In this regard, we find that the examiner erred in characterizing employment of polysilicon layer 61 in Fazan's Figure 8 as forming a landing pad inasmuch as polysilicon layer 61 forms the lower plate of a stacked capacitor, which does not define self-aligned electrical contacts. See column 5, lines 1-16. The examiner has not proffered any evidence which would have suggested depositing a metal and patterning it to define self-aligned electrical contacts. Accordingly, we reverse the examiner's decision rejecting claims 1 through 5 under 35 U.S.C. § 103.

DESCRIPTION REQUIREMENT

The examiner has rejected claims 1 through 5 under 35 U.S.C. § 112, first paragraph, as being based upon a disclosure which fails to satisfy the description requirement of that paragraph. At issue is whether the recitation "depositing a layer of conformal dielectric, said layer contacting at least a portion of said gate electrodes" in claim 1 is described in the disclosure as originally filed within the meaning of 35 U.S.C. § 112, first paragraph. It appears to be the examiner's position* that the conformal dielectric layer contacts only insulation layers 11 and 9 as shown in Figure 1 and does not contact at least a portion of said gate electrode. See Answer, page 5. Thus, the examiner concludes that the recitation in question is not described in the disclosure as originally filed. See Answer, pages 4 and 5.

We initially note that the description requirement found in the first paragraph of 35 U.S.C. § 112 is separate from the enablement requirement of that provision. See Vas-Cath Inc. v. Mahurkar, 935 F.2d 1555, 1561-63, 19 USPQ2d 1111, 1115-17 (Fed. Cir. 1991); In re Barker, 559 F.2d 588, 591, 194 USPQ 470, 472

* We say "appears to be the examiner's position" because the examiner's Response to argument in the final two pages of the Answer is difficult to comprehend.

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(CCPA 1977), cert. denied, 434 U.S. 1064, 197 USPQ 271 (1978).

Moreover, as the court stated in In re Kaslow, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983):

The test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter, rather than the presence or absence of literal support in the specification for the claimed language. The content of the drawings may also be considered in determining compliance with the written description requirement. (citations omitted)

Precisely how close the original description must come to the actual claim language to comply with the description requirement must be determined on a case-by-case basis.

Here, both the specification and the appealed claims indicate that a gate electrode includes a conducting structure, insulating (dielectric) sidewalls 11 and an insulating top layer 9. See specification, page 2, lines 4-5, in conjunction with the preamble of claim 1. As correctly found by the examiner, Figure 1, one of the application drawings, shows a conforming dielectric layer 13 contacting insulation layers 9 and 11, which are part of a gate electrode. The specification also states that "[a] layer of a conformal dielectric is deposited over the surface of the substrate and the gate electrodes. . . ."

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See page 2, lines 5-6. Thus, we find that the original disclosure of the application (taken as a whole) would have reasonably conveyed to the artisan that appellants had possession of the later claimed subject matter, i.e., "depositing a layer of conformal dielectric, said layer contacting at least a portion of said gate electrodes", at the time the application was filed. Accordingly, we reverse the examiner's decision rejecting claims 1 through 5 under 35 U.S.C. § 112 as well.

CONCLUSION

Having determined that the examiner has failed to supply evidence sufficient to establish a prima facie case of unpatentability under 35 U.S.C. § 103 and § 112, first paragraph, we reverse the examiner's rejections of all appealed claims thereunder.

REVERSED

| | | |
|-----------------------------|---|-----------------|
| WILLIAM F. SMITH |) | |
| Administrative Patent Judge |) | |
| |) | |
| |) | BOARD OF PATENT |
| TEDDY S. GRON |) | APPEALS |
| Administrative Patent Judge |) | AND |
| |) | INTERFERENCES |
| |) | |
| CHUNG K. PAK |) | |
| Administrative Patent Judge |) | |

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Serial No. 07/815,316

Judge PAK

Judge GRON

Judge WILLIAM SMITH

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DECISION: REVERSED

Send Reference(s): Yes No
or Translation(s)

Panel Change: Yes No

3-Person Conf. Yes No

Heard: Yes No

Remanded: Yes No

Index Sheet-2901 Rejection(s): _____

Acts 2: _____

Palm: _____

Mailed: Updated Monthly Disk: _____

Updated Monthly Report: _____